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LIST OF THE HEMIPTERA-HETEROPTERA OF MAINE.[1]

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The present list is the first of a series of papers in preparation by me on the Heteroptera of New England and is offered as a record of the species definitely known to inhabit Maine. In view of the great extent of almost inaccessible territory in the state and the relatively small amount of collecting which has been done, it is to be expected that additional species will be found, but I hope that the list is complete enough to be a useful basis for subsequent work, as it includes records of 175 species.

The records have been compiled chiefly from the following sources: An unpublished list of Maine Hemiptera by Mr. O. O. Stover, whose material was determined in part by Uhler, in part by Professor Osborn; the collection of the Maine Agricultural Experiment Station, determined largely by Mr. E. P. Van Duzee; the collection of Mr. F. A. Eddy of Bangor; the collection of the Boston Society of Natural History; and my own collection. The dates given are the earliest and latest which I have found on record for the several species.

My thanks are due the following, who have lent me their assistance: Dr. Edith M. Patch, who has put the collections and records of the Experiment Station at my disposal; Mr. J. R. de la Torre Bueno, who has determined a number of specimens and given valuable suggestions; Mr. F. A. Eddy, the veteran collector of Maine, who has permitted the free use of his valuable collection; Mr. C. W. Johnson, who has given me access to the collection of the Boston Society of Natural History; Mr. O. O. Stover, who has generously allowed me to make use of his unpublished records; and Mr. C. A. Frost, who has given me specimens of several species which otherwise would not have been recorded.

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[1] Papers from the Maine Agricultural Experiment Station: Entomology No. 74.

The arrangement of the families followed is that of the new system of Reuter,[1] with certain modifications in accordance with the views of Kirkaldy and Bueno.

FAMILY CORIXIDÆ.

Arctocorixa Wallengren.

A. interrupta Say. 8 May. Orono.
A. nitida Fieb. 24 April–1 May. Orono.

Corixa Geoffroy.

C. alternata Say. 15 April–13 Oct. Orono.
C. harrisii Uhl. Orono.
C. kennicotti Uhl. 21 April.

FAMILY NOTONECTIDÆ.

Notonecta Linné.

N. insulata Kirby. 27 April. Orono.
N. irrorata Uhl. 22 May–19 Sept. Orono, Machias.
N. undulata Say. 8 May–17 Oct. Orono.
N. variabilis Fieb. 20 April–15 Sept. Orono.

Buenoa Kirkaldy.
(= *Anisops*, American species.)

B. elegans Fieb. Orono.

FAMILY BELOSTOMATIDÆ.

Belostoma Latreille.
(= *Zaitha* Auct.)

B. flumineum Say. 20 June (with eggs)—17 Oct. Orono.

Lethocerus Mayr.
(= *Belostoma* Auct.)

L. americanus Leidy. 8 May–12 Sept. Orono, Oldtown.

FAMILY ACANTHIIDÆ.
(= *Saldidæ* Auct.)

Pentacora Reuter.

P. ligata Say. Norway, Magalloway River.

Acanthia Fabricius.

A. coriacea Uhl. 4–11 July. Orono, Brewer.
A. major Prov. (= *deplanata* Uhl.) Reported from the State by Uhler.

FAMILY MIRIDÆ.
(= *Capsidæ* Auct.)

Stenodema Laporte.

S. trispinosum Reut. 16 June. The Forks.

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[1] Oefv. Fin. Vet. Förh., vol. 54, p. 5 (1911-12).

Miris Fabricius.

M. dolobratus Linn. 31 May–14 July. Throughout the state.
M. vicinus Prov. 22–31 May. Orono.

Resthenia Spinola.

R. insignis Say. 10 July–26 Sept. Paris, Mt. Kineo.

Lopidea Uhler.

L. confluens Say. 28 July–8 Aug. Orono, Camden.
L. media Say. 12 July. Princeton.

Phytocoris Fallen.

P. eximius Reut. 30 June—11 July. Orono, Waldoboro.
P. pallidicornis Reut. 16 Sept. Westbrook, Waldoboro, West Beach.
P. annulicornis Reut. 17 Aug. Ft. Kent, Durham.
P. lasiomerus Reut. 30 July. Orono.
Reported predaceous on aphids.

Neurocolpus Reuter.

N. nubilus Say. Orono.

Calocoris Fieber.

C. norvegicus Gmel. 15 July. Eastport.

Adelphocoris Reuter.

A. rapidus Say. 20 July–15 Aug. Orono, Brunswick, Pownal, etc.

Lygus Hahn.

L. pabulinus Linn. Orono.
L. pratensis Linn. 7 May–12 Sept. Found everywhere.
L. pratensis var. Red form so determined by Van Duzee. Orono.
L. convexicollis Reut. 6 July–17 Sept. Orono.
L. invitus Say. 5–27 July. Orono, Waldoboro, West Beach, Capens.
L. flavonotatus Prov. Orono.

Lygidea Reuter.

L. mendax Reut. 30 June. Orono.
L. rubecula Uhl. 18 July. Moosehead.

Coccobaphes Uhler.

C. sanguinarius Uhl. 27 June–3 Aug. Monmouth, Manchester.

Tropidosteptes Uhler.

T. ? pettiti Reut. Rangeley.

Horcias Distant.

H. limbatellus Walk. 15 Aug.

Pœciloscytus Fieber.

P. basalis Reut. 13 Oct. Westbrook.
P. divergens Reut. 11 July. Capens.

Pœcilocapsus Reuter.

P. dislocatus var. **goniphorus** Say. 15 Aug. Orono.
P. lineatus Fab. 14 July–17 Aug. Orono, Machias, Eastport.

Camptobrochis Fieber.

C. nitens Reut. 11 July–15 Aug. Orono.

Capsus Fabricius.

C. ater Linn. 19 June–18 July. Capens, Orono, Eastport.

Monalocoris Dahlbom.

M. filicis Linn. 31 May–17 Aug. Bethel, Orono, Ft. Kent, Pownal.

Diaphnidia Uhler.

D. pellucida Uhl. 22 July. Orono.
On potato plants.

Hyaliodes Reuter.

H. vitripennis Say. 17 Aug. Ft. Kent.

Cyrtorrhinus Fieber

C. marginatus Uhl. 18–28 July. Moosehead, Orono.

Pilophorus Westwood.

P. amœnus Uhl. Collected in Maine by Packard.

Orthotylus Fieber.

O. flavosparsus Sahlb. 22–30 July. Orono.
On potato plants.

O. congrex Uhl. 10 July. Calais.

Collaria Provancher.

C. meilleurii Prov. 17 Aug. Ft. Kent, Orono.
C. oculata Reut. Durham.

Halticus Hahn.

H. citri Ashmead. Pownal.

Stiphrosoma Fieber.

S. stygica say. 17 Aug. Ft. Kent.

Idolocoris Douglas and Scott.

I. agilis Uhl. Pownal.

Orectoderus Uhler.

O. obliquus Uhl. 26 July. Machias.

Lopus Hahn.

L. decolor Fall. 15 July. Pownal.

Megalocoleus Reuter.

M. coagulatus Uhl. Pownal.

Plagiognathus Fieber.

P. fraternus Uhl. 13 Sept. Westbrook.

P. fuscosus Prov. 11 July–3 Aug. Orono, Waldoboro, Pownal.

P. politus Uhl. 14 July–13 Sept. Orono, Westbrook.

P. obscurus Uhl. 10 July–17 Aug. Calais, Ft. Kent.

So recorded probably=*fuscosus*.

This family has been little collected, and doubtless many more species inhabit the state. I intend to pay special attention to the group, and give this arrangement as merely tentative.

FAMILY ANTHOCORIDÆ.

Anthocoris Fallen.

A. musculus Say. 30 April–19 Aug. Orono, Ft. Kent.

Lyctocoris Hahn.

L. fitchii Reut. 28 June. Orono.

Triphleps Fieber.

T. insidiosus Say. 22 June. Orono, Pownal.

FAMILY CLINOCORIDÆ.

(=*Cimicidæ* Auct.)

Clinocoris Fallen.

C. lectularius Linn.

Seasons and distribution no more restricted than in other regions.

C. *?* **hirundinis** Jenyns.

There is a specimen in the Station collection taken from a swallow's nest and so labelled, but probably this species is strictly European.

FAMILY NABIDÆ.

Pagasa Stal.

P. fusca Stein. Orono.

Reduviolus Kirby.

R. subcoleoptratus Kirby. 7 July–27 Aug. Orono, Belfast, Ft. Kent.

R. rufusculus Reut. 8 May–5 Oct. Orono, West Beach, Waldoboro.

R. ferus Linn. 17 April–5 Oct. Generally distributed, Orono, etc.

FAMILY NEPIDÆ.

Ranatra Fabricius.

R. americana Mont. 4 Oct. Orono.

This species has been confused with both *fusca* Beauv. and *quadridentata* Stal. *Nepa apiculata* Harr. should be found in the state, as its known range includes this region.

FAMILY HYDROMETRIDÆ.

Hydrometra Latreille.

H. martini Kirk. 6 May–17 July. Orono, Monmouth.

FAMILY REDUVIIDÆ.

Pygolampis Germar.

P. pectoralis Say. Manchester.

Reduvius Lamarck.

R. personatus Linn. 19 June–24 Aug. Orono, Pownal, Brunswick.

Apiomerus Hahn.

A. ventralis Say. 26 June. Monmouth.

Zelus Fabricius.

Z. exsanguis Stal. (= *luridus* Stal.) Manchester.
Z. socius Uhl. 18 July. Monmouth.

Fitchia Stal.

F. aptera Stal. 31 May–29 June. Manchester, Orono, Monmouth.
Records of the winged form have not come to my notice.

Acholla Stal.

A. multispinosa De Geer.

Sinea Amyot et Serville.

S. diadema Fab. 4 July–8 Aug. Orono.

(SUBFAMILY EMESINÆ.)

Ploiariodes White.

P. tuberculata Banks. 27 June. Monmouth.

FAMILY MACROCEPHALIDÆ.

(= *Phymatidæ* Auct.)

Phymata fasciata Gray should be found in the state, but definite records have not come to my notice.

FAMILY GERRIDÆ.

Gerris Fabricius.

G. remigis Say. 20 April–17 May. Orono.
G. conformis Uhl. 22 Sept. Orono.
G. marginatus Say. 10 May–19 July. Orono, Westbrook, Norway, Durham.
G. buenoi Kirk. 1 May–15 Sept. Orono.

Limnoporus Stal.

L. rufoscutellatus Latr. 6 May–19 July. Orono, Brunswick, Norway.

Trepobates Uhler.

T. pictus Her.-Schfr. 15 Sept. Orono.

Metrobates Uhler.

M. hesperius Uhl. 22 Sept. Orono.

FAMILY VELIIDÆ.

Microvelia Westwood.

M. americana Uhl. 17 May–19 Sept. Orono, Pownal, Paris.

M. borealis Bueno MSS. 3 May. Orono.

I took specimens of this species in a temporary puddle in a wagon road through a field.

Rhagovelia Mayr.

R. obesa Uhl. 15 July. Paris.

FAMILY TINGITIDÆ.

Corythuca Stal.

C. ciliata Say. Collected in Maine by Packard.

C. juglandis Fitch. 4–6 June. Orono.

C. arcuata Say. May–17 June. Ft. Kent, Brunswick, Bethel.

C. pergandei Heid. 22 May–17 Sept. Orono.

Leptobyrsa Stal.

L. explanata Heid. Bar Harbor.

Physatochila Fieber.

P. plexa Say. Westbrook.

Tingis Fabricius.

T. (*Melanorhopala*) **clavata** Stal.

The occurrence of this species is reported in the Station records, but I have been unable to locate an actual specimen.

FAMILY MYODOCHIDÆ.

(= *Lygæidæ* olim)

Ischnorhynchus Fieber.

I. geminatus Say. 22 May–11 Sept. Orono.

Records of *I. resedæ* Panz. probably refer to this species.

Cymus Hahn.

C. luridus Stal. 24 May. Orono.

C. angustatus Stal. 10–26 June. Westbrook, Orono, Holden.

C. discors Horv. 20 June. Orono.

Blissus Burmeister.

B. leucopterus Say. 13 April–3 May. Jackman, Orono.

B. hirtus Mont. 7 April–12 May. Orono.

These two species are very closely allied, and may not be distinct. I found them together under stones in early spring.

Phlegyas Stal.

P. annulicrus Stal. 23 June. Holden.

Œdancala Amyot et Serville.

Œ. dorsalis Say.

Reported from the state by Stover, but I have not been able to find definite data.

Nysius Dallas.

N. ericæ Schill. 28 Sept. Orono, Westbrook, Pownal.
N. longiceps Stal. 28 July. Orono.

Belonochilus Uhler.

B. numenius Say. 10 Sept. Orono.

Orsillus Dallas.

O. scolopax Say. Portland.

Uhler recorded this species as abundant on dry sedges near Portland.

Lygæus Fabricius.

L. kalmii Stal. 27 July–11 Aug. Orono, Green Lake.
L. turcicus Fab. Orono, Waldoboro.

Cligenes Distant.

C. pallidus Uhl. 22 April. Orono.

Ligyrocoris Stal.

L. contractus Say. 2–12 Sept. Orono.
L. diffusus Uhl. 2–15 Sept. Orono.

Myodocha Latreille.

M. serripes Oliv. 24–30 May. Orono.

Sphærobius Uhler.

S. insignis Uhl. 25 Sept. Westbrook.

Cnemodus Herrich-Schaeffer.

C. mavortius Say. 19 June. Skowhegan.

Sphragisticus Stal.

S. nebulosus Fallen. 13 Sept. Pownal.

Eremocoris Fieber.

E. ferus Say. 27 April–13 Sept. Holden, Orono, Pownal, Capens.

Drymus Fieber.

D. unus Say. Orono.

Scolopostethus Fieber.

S. ? atlanticus Horv. 29 March. Orono.
S. diffidens Horv. 30 April. Orono.

Xestocoris Van Duzee.

X. nitens V. D. 22 April. Orono.

Geocoris Fallen.

G. bullatus Say. 15 June–20 July. Orono, Pownal.

Family NEIDIDÆ.

(= *Berytidæ* olim)

Neides Latreille.

N. muticus Say. 10 June–14 Aug. Orono.

Jalysus Stal.

J. spinosus Say. 6 June. Bangor.

Family ARADIDÆ.

Aradus Fabricius.

A. æqualis Say.
A. robustus Uhl. 24 April–27 June. Orono, Monmouth, Manchester.
A. similis Say. 29 April–4 June. Orono.
A. acutus Say. Norway.
A. niger Stal. 29 March–11 May. Orono.
A. quadrilineatus Say. 17 June–19 July. Holden, Paris, Monmouth.
A. hubbardi Heid. 4 June. Orono.
A. lugubris Fall. 7 June. Orono, Norway.
A. abbas Bergr. 17 July–17 Aug. Ft. Kent, Machias.

Aneurus Curtis.

A. inconstans Uhl. 24 Sept. Orono.

Family CORIZIDÆ.

Corizus Fallen.

C. crassicornis Linn. (= *punctiventris* Auct.) 31 May–7 Sept. Ft. Kent, Orono.
C. lateralis Say. Orono.

Harmostes reflexulus Say doubtless occurs, but no definite record has come to my notice.

Family COREIDÆ.

Anasa Amyot et Serville.

A. tristis De Geer. 22 June–17 Oct. Orono and numerous other localities.

Corynocoris Mayr.

C. typhæus Fab. 10 May. Orono.

I took twelve specimens of this species as they flew up, one by one, to the dried body of a long dead fowl. Some alighted nearby and others disappeared within the carcass. I was unable to determine whether they came to feed on the juices of the carrion or to prey on other insects, and they may have been attracted merely by the odor. I believe that there are few if any so positive records of the frequenting of carrion by Heteroptera.

FAMILY ALYDIDÆ.

Alydus Fabricius.

A. eurinus Say. 19 June. Orono.
A. pilosulus Her.-Schfr. 8 Sept. Orono.
A. conspersus Mont. June–10 Aug. Orono, Ashland.

Megalotomus Fieber.

M. quinquespinosus Say. 5 Aug.–28 Sept. Orono, S. Orrington.

Protenor Stal.

P. belfragei Hagl. 15 July–11 Sept. Orono, Pushaw Lake, Norway.

FAMILY PENTATOMIDÆ.

(*Cimicidæ* Kirk.)

Elasmostethus Fieber.

E. cruciatus Say. 12 June–31 Aug. Orono, Paris, Ft. Kent, N. E. Harbor, Chamberlain Lake.

Elasmucha Stal.

E. lateralis Say. 4 July–30 Sept. Mt. Katahdin, Kineo, Capens, Mercer, N. E. Harbor.

Pentatoma Olivier.

P. persimilis Horv. 15 May–26 Sept. Orono, Caribou, Monmouth, Cherryfield.

Mormidea Amyot et Serville.

M. lugens Fab. 25 July–2 Sept. Orono, near Portland.

Euschistus Dallas.

E. euschistoides Voll. (= **fissilis** Uhl.) 18 June–11 Sept. Orono, Pownal, etc.
E. tristigmus Say. 27 May–17 Sept. Orono, Houlton, Wales, Pownal.
E. variolarius Pal. Beauv. Orono.

No doubt *E. ictericus* Linn. will be found, as its known range seems to include the state.

Cœnus Dallas.

C. delius Say. 5 May–17 Sept. Orono, Bar Harbor.

Neottiglossa Kirby.

N. undata Say. 19 May–31 Aug. Orono, Bar Harbor.

Cosmopepla Stal.

C. carnifex Fab. (*lintneriana* Kirk.) 31 May–17 Sept. Capens, Orono, Ft. Fairfield, Eastport.

Banasa Stal.

B. calva Say. Orono, Manchester.
B. dimidiata Say. 16 June–28 Sept. Orono, S. Orrington, Bangor, Sherman.

Perilloides Schouteden.
(*Perillus* Stal., in part.)

P. exaptus Say. 19 May–30 Aug. Orono, Wales, Monmouth.
P. circumcinctus Stal. 17 May. Pownal.

Zicrona Amyot et Serville.

Z. cærulea Linn. 22 to 24 June. Newbury Neck, near Surrey.

I have one specimen of this species taken by Mr. F. A. Eddy on the coast. As far as I know it has hitherto been reported only from the West and from Mt. Washington, N. H.

Apateticus Dallas.
(= *Podisus* Herrich-Schaeffer.)

A. cynicus Say. 25 Aug.–2 Sept. Orono. Pittsfield.
A. bracteatus Fitch. 6–24 Aug. Long Island in Penobscot Bay, Houlton.
A. maculiventris Say. 11 June–13 Sept. Orono, Norway, Pownal.
A. sereiventris Uhler. 29 May–3 Aug. Orono.
A. modestus Dallas. 24 June–17 Aug. Orono, Bangor, Pownal, Monmouth.

Family THYREOCORIDÆ.
(incl. *Cydnidæ*)

Sehirus Amyot et Serville.

S. cinctus Pal.-Beauv. 30 April–31 Aug. The Forks, Orono, Bangor, Chamberlain Lake.

Thyreocoris Schrank.

T. nitiduloides Wolff. 14 June–21 Aug. Orono, Deering, Norway.
T. pulicaria Germ. 8 May. Orono.
T. unicolor Pal.-Beauv. 30 April–15 Sept. Orono, Pownal, Norway.

Family SCUTELLERIDÆ.

Homœmus Dallas.

H. æneifrons Say. 22 July–12 Sept. Orono, Machias, Ft. Kent, Ashland.

Eurygaster Laporte.

E. alternata Say. 8 May–21 Aug. Orono, Houlton, Pownal, W. Beach.

NEW AND LITTLE KNOWN HARVESTING ANTS OF THE GENUS POGONOMYRMEX.[1]

By William Morton Wheeler.

1. Pogonomyrmex guatemaltecus sp. nov.

Worker. Length 5–5.5 mm.

Head subrectangular, excluding the mandibles a little longer than broad, with nearly straight sides, feebly excised posterior margin and prominent anterior corners. Eyes rather small and flat, elliptical, just in front of the median transverse diameter of the head. Mandibles convex, with five subequal teeth. Clypeus short, feebly convex, its anterior border strongly bidentate, arcuately excised between the teeth, sinuate laterally. Frontal area distinct, with a median carinula. Antennal scapes reaching less than half the distance between the eyes and posterior corners of the head; funicular joints 2–10 scarcely longer than broad. Thorax short, but little longer than the head without the mandibles, broadest through the pronotum, somewhat compressed behind; in profile the dorsal outline is usually convex and evenly rounded as far back as the boundary between the epinotal base and declivity. These meet at an obtuse angle, the declivity being shorter than the base, descending perpendicularly and forming a right angle on each side with the metasternal angle which is sharp and rectangular in profile. There are no traces of spines or teeth on the epinotum. Petiole with a slender, laterally compressed peduncle which is nearly as long as the node and armed with a distinct anteroventral tooth; node compressed anteroposteriorly and rounded in front, slightly overarching the peduncle, with which its straight or slightly concave anterior surface forms at least a right angle and in some specimens even an acute angle in profile; seen from above the posterior surface is subelliptical, nearly twice as long as broad, and with rounded and not acute anterior border. Postpetiole campanulate, a little broader than the petiole, broader behind than in front, in profile very convex both dorsally and ventrally. Gaster elliptical, smaller than the head. Legs well developed.

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[1] Contributions from the Entomological Laboratory of the Bussey Institution, Harvard University, No. 80.

Body, but especially the mandibles and gaster, shining. Mandibles very coarsely longitudinally striated. Clypeus and head covered with coarse longitudinal rugæ, subparallel on the head and diverging only very slightly from the median line and not till they reach the occiput. Interrugal spaces reticulate and feebly punctate. Anterior depressed portion of pronotum transversely rugulose; remainder of pronotum, the mesonotum and pleuræ coarsely and longitudinally reticulate-rugose. Rugæ on the epinotum finer and transverse. Petiolar peduncle smooth and shining, posterior surface of node coarsely longitudinally reticulate-rugose. Postpetiole subopaque, finely and densely reticulate-punctate. Upper surface of gaster with sparse piligerous foveolæ, which are somewhat more closely aggregated near the anterior margin of the first segment. Legs very finely shagreened with small, sparse, piligerous punctures. Antennal scapes longitudinally rugulose.

Hairs pale yellow, stiff, pointed, erect, varying in length, generally distributed over the body and appendages. Ammochætæ on clypeus, ventral surfaces of mandibles and gula long, but on the gula forming only a small psammophore, *i.e.*, the long hairs surround only the anterior portion of the gula and do not enclose the whole of it as in most species of *Pogonomyrmex sens. str.*

Color deep red, legs and base of first gastric segment slightly paler; teeth of mandibles black; anterior border of clypeus, posterior border of first gastric segment and a transverse band on each of the remaining segments dark brown or blackish.

Female (deälated). Length nearly 7 mm.

Very similar to the worker. Rugosity of thorax finer and more regular. Gaster larger, with the black banding of the segments more distinct, but the punctures on the dorsal surface smaller and less foveolate.

Described from a large number of workers and a single female, which I took December 12–14, 1911, from many nests at Zacapa, Guatemala, in the extremely arid plains known as "La Fragua," a region with pronounced xerophytic vegetation (giant cacti, etc). The ants were nesting in the fields, the grass of which, at the time of my visit, was parched and had been eaten down to the roots by the cattle. The nests were regular, flattened craters from 3–8 inches in diameter, not surrounded by clearings, and much like the nests of the other small North American species of *Pogonomyrmex*. A pile of grass-seed or chaff, often found to one side of the crater, showed that the species is granivorous like other members of the genus. Many nests were also found in the sand-ballast of the railroad near the town of Zacapa. The worker is readily distinguished from that of most of the described species of *Pogonomyrmex* by the peculiar shape of the thorax, clypeus and petiole and by the 5-toothed mandibles.

2. **Pogonomyrmex huachucanus** sp. nov.

Worker. Length 4.5–5 mm.

Head subrectangular, excluding the mandibles as broad as long, with nearly straight lateral and feebly excised posterior margin. Eyes elliptical, rather convex, at the middle of the sides of the head. Mandibles with convex external and rather oblique apical borders, the latter 6-toothed. Clypeus moderately convex, its anterior border marginate, distinctly bidentate and arcuately excised between the teeth. Frontal area distinct, with median carinula. Antennæ not reaching halfway between the eyes and the posterior corners of the head; first and second funicular joints distinctly longer than broad, remaining joints, except the last, as long as broad. Thorax slightly longer than the head without the mandibles, from above broadest through the pronotum, but with the transverse diameters of the meso- and epinotum equal; in profile the dorsal outline is convex in the pronotal region but the mesonotum and base of the epinotum form a straight line gently sloping to the two spines, which are shorter than the base of the epinotum, rather slender but blunt, closely approximated at their bases and directed upward, outward and slightly backward. The epinotal declivity is short, abrupt and much as in *P. guatemaltecus*, forming in profile a right angle with the metasternal angles, which are in turn rectangular. Petiole with slender, laterally much compressed peduncle, half as long as the node and with a distinct but rather blunt anteroventral tooth. Node from above subelliptical, pointed or acuminate in front, less than twice as long as broad, its posterior surface rather sharply marked off from the anterior, so that the summit appears pointed also in profile. The anterior surface is slightly convex in profile and rises abruptly and perpendicularly from the peduncle, the posterior surface, also slightly convex, is about one and one half times as long as the anterior and constricted near its posterior end. Postpetiole from above subglobular, a little broader behind than in front, a little broader than long and somewhat broader than the petiolar node. In profile the dorsal surface is very convex, the ventral bears a rounded boss in its middle. Gaster elliptical, proportionally larger than in *P. guatemaltecus*

Mandibles, gaster and legs shining, remainder of body appearing more subopaque, owing to their sculpture. Mandibles longitudinally striated; clypeus and head longitudinally rugose, the rugæ being moderately strong and numerous and distinctly and gradually diverging from the median line towards the posterior corners; the interrugal spaces densely punctate. Thorax throughout reticulately rugose, the rugæ being somewhat coarser and further apart than on the head, longitudinal on the pronotum and pleuræ and arcuately transverse on the mesonotum and base of the epinotum. Peduncle and anterior surface of petiolar node shining, finely shagreened, posterior surface coarsely and irregularly rugose and punctate. Postpetiole finely and densely punctate. Gaster very smooth and shining even at the base, with minute and sparse piligerous punctures. Legs finely shagreened and sparsely punctate, antennal scapes longitudinally rugulose.

Hairs pale yellow, erect, of unequal length, covering all parts of the body, longest on the dorsal surface. Ammochætæ well-developed on the clypeus, ventral surfaces of mandibles and gula, but the psammophore is restricted as in *P. guatemaltecus* and does not extend to the posterior and lateral borders of the head.

Deep red, lower surface of head, the legs, coxæ and gaster paler and more yellowish; dorsal surface of first gastric segment with a dark brown cloud on each side and usually with a median longitudinal streak of the same color. Mandibular teeth and anterior border of clypeus black.

Described from twenty-two specimens taken by myself November 11, 1910, from a single nest on the rocky southern wall of Miller Canyon in the Huachuca Mountains, Arizona, at an altitude of about 5,600 feet. This nest was under a small, flat stone and resembled the nests of *P.* (*Ephebomyrmex*) *imberbiculus* Wheeler, which I have seen in the mountains of Texas.

At first sight *P. huachucanus* resembles *guatemaltecus*, but closer comparison reveals many differences, especially in the shape of the thorax and petiole, not the least being the presence of epinotal spines in the former species. This is, indeed, unlike any of the known North American species but singularly close to *P. bispinosus* Spinola of Chili, as I find by comparison with cotypes of the variety *semistriatus* Emery received from Professor Silvestri. The thorax in *bispinosus*, however, is more flattened dorsally in front than in *huachucanus*, the metasternal angles are rounder, the petiolar node is lower and the postpetiole is as long as broad and less globular. The gaster of the typical *bispinosus* is said to be smooth and shining as in *huachucanus*, but in the variety *semistriatus* its base is opaque and finely punctate-striolate. These differences are all so slight that *huachucanus* may eventually prove to be merely a subspecies of *bispinosus.* The resemblances between the two forms, separated by such a wide territory, is very suggestive in connection with the origin of the genus *Pogonomyrmex.* Owing to the fact that this genus is represented by the greatest number of species in North America, and that it is most closely related to the boreal genus *Myrmica*, it has been assumed that the species of *Pogonomyrmex* originated in the western United States and migrated thence along the arid plains and mountain ranges through Mexico, Central and South America as far as Patagonia. On this assumption, *P. huachucanus* might be regarded as a rare relict of a group of species which once ranged over a large portion of western America, but now survive only in Chili and the Huachuca Mountains of Arizona.

P. huachucanus and *guatemaltecus*, together with *bispinosus* and two other South American species, *brevibarbis* Emery and *silvestrii* Emery, are also of considerable interest, because in the restricted area of the gula enclosed by the long hairs of the psammophore and in sculpture they are transitional between the species of *Pogonomyrmex sens.* str. and the subgenus *Ephebomyrmex* Wheeler. The acute, spinose character of the metasternal angles in *brevibarbis* and *silvestrii* reveals a still closer relationship to the latter subgenus. All of these species may, therefore, represent today the most primitive and ancestral forms from which both subgenera have been evolved.

3. **Pogonomyrmex californicus** Buckley.

The worker of the typical form of this species measures 5.5–6 mm. and is characterized by the shape of the petiole and the sculpture. The anterior surface of the petiolar node forms very nearly a right angle with the upper surface of the peduncle, and the ventral surface of the latter bears no tooth. The surface of the body is shining, the rugæ of the head and thorax being sharp and pronounced, the spaces between them impunctate or with punctures so small and shallow as to be barely visible under a magnification of 20 diameters. The petiolar and post-petiolar nodes are very finely and densely punctate and indistinctly rugulose. The body is light ferruginous red, the mandibles, clypeus and legs more yellowish.

The female measures about 8 mm. and resembles the worker very closely in form, sculpture and color. The head is somewhat broader than long. Wings hyaline, with their basal portions distinctly yellowish, the veins and stigma brown.

The male measures 7.5 mm. and has rather broad mandibles, with oblique 4-toothed blades. Head, thorax, nodes of petiole and postpetiole, coxæ and femora, except their bases and tips, and base of first gastric segment, black; remainder of body red, the mandibles and antennæ being more brownish, the gaster more yellowish in tint. Wings colored as in the female.

No type-locality in California is mentioned in Buckley's original description. I have seen numerous specimens from the following places:

California: Lakeside, Pasadena and Claremont (Wheeler); Point Loma, near San Diego (P. Leonard); San Pedro (T. D. A. Cockerell); Lompoc and Upland (J. C. Bradley); San Jacinto; Sierra Valley.

Arizona: Yuma (Wheeler).

Nevada: Las Vegas (J. C. Bradley)

This ant is very common in the sandy canyon bottoms of southern California. Its nests are flat craters 4–10 inches in diameter, with sloping, central or eccentric entrances. The workers are agile hunters of insects when these are to be found, but at certain seasons of the year large numbers of seeds are collected and stored in the nests. The nests in the Arroyo Seco, at Pasadena, Cal., were often found covered with the seeds of a common canyon shrub (*Eriogonum fasciculatum*) during the month of December.

4. **Pogonomyrmex californicus** Buckley subsp. **estebanius** Pergande.

This form, which should be regarded as a subspecies and not as a variety, averages a little smaller in all three phases than the typical *californicus*. In the worker the rugæ of the head and thorax are decidedly more delicate, but the interrugal punctures are quite as indistinct. The anterior surface of the petiolar node is more sloping and therefore forms a larger obtuse angle with the upper surface of the peduncle, and the node is lower than in the typical form of the species. There is also a tendency to develop a tooth on the anteroventral surface of the petiole. Typically the gaster is black, with the base of the first segment yellowish red; but specimens are sometimes found with only the tip of the gaster black or with a few black spots on the first segment, usually near its lateral or posterior borders. The nodes are sometimes infuscated; more rarely the whole gaster is black.

The female varies considerably in size, from 7–9 mm; and the gaster varies greatly in color. In most of my specimens it is entirely black, except for a large, bilobed, yellowish red spot at the base of the first segment. In others only the lateral and posterior margins of this segment are black and often the markings are interrupted in the middorsal line. The veins of the wings are pale yellow, but the stigma is brown.

The male measures 6.5–8.5 mm. Its mandibles are narrow, with transverse, bidentate, apical borders. Its color resembles that of the typical *californicus*, except that the gaster is in some specimens entirely red, in others entirely black. In some specimens, too, more or less of the anterior portion of the head may be red.

Lower California: Calmalli Mines, San Esteban, type locality; San Borgia and Margarita Island (Eisen and Haines).

California: Needles (Wheeler); Otis (J. C. Bradley).

Arizona: Yuma, Yucca, Tucson and Phoenix (Wheeler); Nogales (Oslar); Florence.

This subspecies is very abundant in the hot deserts of California and Arizona, but according to my observations it nests only in pure sand.

5. **Pogonomyrmex californicus** Buckley subsp. **longinodis** Emery.

I fail to find this form among the large amount of material I have collected, and am inclined to believe that it must be either very rare or local. It was described by Emery as follows from specimens taken in the Colorado Desert of California and received from Pergande: "The worker differs from that of *P. californicus* in its more slender pedicel, the second joint of which [*i.e.* the postpetiole] is not as high as long; the peduncle of the first joint [petiole] is shorter than the very long and anteriorly pointed node. Sculpture feebler than in *californicus;* pedicel merely finely punctate, without rugæ. Color rather light red, abdomen, with the exception of the pedicel and its base, brown."

6. **Pogonomyrmex californicus** Buckley subsp. **maricopa** subsp. nov.

The worker of this form measures 6–7.5 mm. and therefore averages larger than the typical *californicus* from which it differs in the shape of the petiole and in sculpture. The node of the petiole is less pointed above, its anterior surface is straight and forms an obtuse angle with the upper surface of the peduncle, and there is often a distinct anteroventral tooth. The petiole is fully as long as high. The rugæ of the head and thorax are much less prominent and the spaces between them are filled densely with very distinct punctures, clearly visible under a magnification of 20 diameters. The surface of the head and thorax are decidedly subopaque and not shining as in the typical *californicus.* The nodes of the petiole and postpetiole are also more coarsely shagreened and less shining. The color is the same.

A single deälated female from Rincon, New Mexico, measures 8 mm. and closely resembles the female of the typical form in sculpture, the rugæ of the head and thorax being sharp, the interrugal punctures rather indistinct.

New Mexico: Alamogordo, type locality (G. von Krockow); Prescott and Albuquerque (Wheeler); Roswell, Deming and El Rincon (T. D. A. Cockerell); Las Truches (Miss Lillie Gerhardt); Engle (Miss Nora Newberry.)

Arizona: Yuma, Tucson, Benson and Grand Canyon (Wheeler).

California: Needles (Wheeler).

Texas: Marfa (Wheeler); Barton (J. C. Crawford); Victoria (J. D. Mitchell); Chisos Mts., 4600 ft. (W. B. Phillips).

Mexico: Ojos del Diablo and Ojos de San Dijuela in Chihuahua (C. H. T. Townsend).

As shown by this list of localities, *maricopa* ranges much further to the east, through the deserts of New Mexico and Texas, than the other subspecies of *californicus*, and usually occurs at greater elevations. Its nests are very similar, being flat craters in sand, with sloping central or eccentric entrances.

7. **Pogonomyrmex subnitidus** Emery.

If I am correct in my identification, this form is not a subspecies of *P. occidentalis* Cresson, as Emery supposed, but a distinct species. Emery's description is unfortunately very brief, but I believe that it refers to a form which I found nesting in the vicinity of Pasadena, California, both in the higher portions of the Arroyo Seco and on the summit of Mt. Lowe (6400 ft.). I have also received a series of workers of the same form from Mr. J. C. Bradley, who took them in Los Gatos Canyon of the Diablo Range in the same state. The nests are like those of *californicus* and therefore entirely unlike the nests of *occidentalis*. The sculpture of the head, thorax and pedicel of the worker, moreover, is very much like that of the true *californicus*, but the epinotum is armed with two slender, pointed spines, which are longer than in *occidentalis*.

8. **Pogonomyrmex comanche** Wheeler.

This form, which was also originally described as a subspecies of *occidentalis*, must now be regarded as an independent species. In the worker *comanche* the thoracic dorsum is distinctly more rounded and arched in profile than in the worker *occidentalis* and the epinotal spines are longer both in the worker and female, but especially in the latter. There is also a great difference in the mandibles of the males of the two species, the blade in the male *occidentalis* being moderately broad with oblique apical border bearing 5 or 6 teeth, whereas in *comanche* it is narrow and more curved and its apical border is transverse and only 3–4-toothed. The epinotum of the male *comanche* bears a pair of small teeth, which are represented by tubercles in *occidentalis*. The greatest difference between the two species, however, is seen in the habits and distribution, *comanche* living at low levels in pure sand, where it makes rather small, flat crater nests very much like those of *californicus*, whereas *occidentalis* lives at elevations over 6,000 feet, and constructs large gravel cones with basal entrance and surrounded by a clearing. The colonies of the latter species are also much more populous. The types of *comanche* were taken in the sandy post oak woods at Montopolis, near Austin, Texas. I have taken the species also at Milano in the same state.

A study of *comanche*, *subnitidus*, *californicus* and its subspecies *maricopa* shows that these forms have essentially the same habits and are all very closely and peculiarly related. Without its spines the worker *subnitidus* would be indistinguishable from the worker *californicus*, and the same relation obtains between *comanche* and *maricopa*. As it seems evident that the spined species of *Pogonomyrmex* must be more primitive that the spineless forms, it is not improbable that *subnitidus* is really the parent species of *californicus* and *comanche* the parent species of *maricopa*. If further study supports this conclusion, *maricopa* will have to be regarded as a distinct species.

FORFICULA AURICULARIA IN RHODE ISLAND.

By R. W. Glaser,
Bussey Institution, Harvard University.

Since all previous records of *Forficula auricularia* in America are very dubious, a report of the occurrence of large numbers of this species of earwig in Newport, Rhode Island, seems advisable.

While in Newport in July, 1914, I heard that the estate of Mr. T. Suppern Tailer was infested with earwigs and that they were making themselves extremely disagreeable by entering the house and crawling over people at night. I went to the estate and found literally hundreds of what I then supposed to be the European earwig. Mr. James A. G. Rehn of the academy of natural sciences in Philadelphia and Mr. A. P. Morse of Wellesley, Mass., have since kindly identified the species as *F. auricularia* Linn.

I found the insects hiding in all possible places during the day. They were abundant in the cracks of stone walls, under porches and behind vines. They were also taken from the inside of flowers in large numbers.

According to Mr. Tailer and his gardener, the earwigs were first noticed in 1912. In 1913 they increased to such an extent that suppression work by spraying was begun and at the time of writing this note (July, 1914), they seemed to have passed beyond control and have spread to adjoining estates. No one seems to be able to account for the introduction of *F. auricularia* into this estate in any other way than through the agency of imported plants. Their prodigious increase can also be explained with no less difficulty, for refuse or anything which one might expect to be favorable food is not permitted to accumulate. Not having the time to devote to the subject, I was unable to determine upon what the earwigs were feeding.

It seems quite important that the matter be investigated by economic entomologists, otherwise, *F. auricularia* might soon rival the familiar and unwelcome *Blattella germanica* as a household pest.

A NEW STRATIOMYID

By Charles W. Johnson,
Boston Society of Natural History.

This interesting fly was taken on one of my many collecting trips to the Berkshire Hills in western Massachusetts. I have delayed recording it, hoping that additional material would be obtained. In the table of genera this would go in the genus Zabrachia Coquillett, but the form of the antennæ would at once exclude it from that genus, while both venation and antennæ bar it from the other genera of the group. Although lacking the anterior branch of the third vein, the position of the second and third veins is nearer that of *Pachygaster* than of *Zabrachia.*

Berkshiria gen. nov.

Third joint of the antennæ oblong, about double the length of the first and second taken together; third joint with five annuli, the basal one broader than the others; arista terminal, style-like, about as long as the entire antenna; front with two longitudinal ridges; transverse suture deeply impressed; scutellum large, rounded, with a broad depressed margin; third longitudinal vein without the anterior branch; ends of the terminal joints of the tarsi with bristle-like hairs. Type *B. albistylum* sp. nov.

Berkshiria albistylum sp. nov.

Black; front shining, the two ridges forming deep central and orbital grooves, ocelligerous tubercle prominent; face receding, the orbits white; antenna yellow, arista white with its basal fourth black. Thorax sparsely covered with a whitish pubescence; humeri angulate with a small yellow spot at each point, a raised collar extending between the humeri, and a blunt spine on each side before the base of the wing. Abdomen broad, about double the width of the thorax, the five segments shining, sparsely covered with whitish hairs. Halteres white, base of the knobs and stems brown. Legs black, knees, tips of the tibiæ and the tarsi yellow, the last two joints of the latter brownish. Wings hyaline, veins yellowish, three veins extending from the discal cell. Length, 4 mm.

One specimen, collected along Austen's Brook, Chester, Mass., May 28, 1912. Type in the collection of the Boston Society of Natural History.

Other interesting Stratiomyidæ collected at Chester, Mass., are *Scoliopelta luteipes* Will. (*Entom. Amer.*, I, 154, 1885) which was quite common August 5 and 6, 1914, and a specimen of *Chrysochroma nigricornis* Loew, July 25, 1913.

A NEW AËDINE.

By C. S. Ludlow,
Army Medical Museum, Washington, D. C.

A long while ago, before it was known that *Skusea multiplex* Theob. had long palpi in the male, and therefore was not a *Skusea*, I received and named a lot of mosquitoes, which seemed to be of this species. Nothing had called my attention to the change of position of *multiplex*, so the specimens were not re-examined, but lately I sent specimens to Mr. Edwards, who has called my attention to this point and, as the species was undescribed, kindly returned the specimens for description. In general appearance the female probably more nearly resembles *multiplex* than any other species but it is described below as

Aëdes panayensis sp. nov.

Head dark brown, covered with flat brown scales, which appear grey in some lights, and small curved scales around the eyes; antennæ brown, white-banded, verticels brown, pubescence white; palpi brown and very short in both male and female; proboscis brown; clypeus brown; eyes dark brown.

Prothoracic lobes brown; mesothorax brown, sometimes very dark, and covered with slender golden brown curved scales; scutellum as mesothorax, with six long marginal brown bristles on the mid, and three marginal bristles on the lateral lobes; pleura dark, with bunches of white scales; metanotum dark brown.

Abdomen with brown scales and large white basal lateral spots on all but the eighth segment.

Legs: coxæ and trochanters light; femora dorsally brown, and ventrally white nearly to the apex, and a light knee spot; tibiæ dorsally brown, darker than the femora, but ventrally white scaled to the apex; tarsal joints all brown. With the exception of the femora, all the parts of the legs show a decided variation as to color, dependent on the angle of light. Ungues of female serrate, those of the male fore legs have both the ungues serrate.

Wing clear, covered with brown rather heavy *Tæniorhynchus*-like scales. The first sub-marginal cell is about three times as long as its stem, and nearly a third longer and as wide as the second posterior cell, which is about the same length as its stem. The mid cross-vein meets the root of the third long vein and they are of about equal length, while the posterior cross-vein is much shorter, and three times its length interior to them. Halteres have light stems and dark knobs.

Length: (female) 3 mm. (male) 2.5 mm.

Habitat: Rather widespread, but the first specimens were taken at Iloilo, Panay, P. I.

Taken at various times in the various places.

THE STANFORD EXPEDITION TO BRAZIL, 1911.

J. C BRANNER, *Director.*

ACARIANS FROM BRAZIL.

By Nathan Banks,
East Falls Church, Va.

The mites collected by Messrs. Mann and Baker belong to two families, Ixodidæ and Parasitidæ (Gamasidæ). Several are the same as those described from Paraguay by Berlese; the ticks are species common in Brazil; of the six species described as new, the *Trachuropoda* is the most remarkable. Besides these there are some immature specimens, mostly of the Parasitidæ, that cannot be named.

Ixodidæ.

Amblyomma striatum Koch. Two from Porto Velho, Rio Madeira (Mann and Baker).

Amblyomma geayi Neum. One from Abuná, Rio Madeira, Brazil (Mann and Baker).

Margaropus annulatus Say. Several from Porto Velho, Rio Madeira, Brazil, (Mann and Baker).

Parasitidæ.

Megalolælaps hæros Berl. Several from Independencia, Parahyba, on *Copris* (Mann).

Macrocheles cordiger Berl. Specimens, which are probably this species have the dorsal shield less narrowed behind than Berlese figures. They are from Porto Velho, Rio Madeira, on *Phanæus* (Mann).

Hypoaspis scutalis sp. nov.

Body about once and a half longer than broad, nearly truncate behind, sides nearly parallel. Dorsum without hairs, two stout ones on margin near tip, and short bristles on ventral edge near margin; palpi long and prominent; legs I and IV fully as long as body, last joint of leg I very much longer than the preceding joint; leg II rather stout in the middle; all with short hairs or spine-like bristles. Sternal plate with three hairs each side, not near margin, one on a small plate at base of coxa III. Vulva shows a triangular opening. Ventri-anal plate extremely broad in front, concavely narrowed on posterior sides, nearly twice as broad in front as long, a few stout bristles each side; anus with a hair each side. Length .7 mm.

From Abuná, Rio Madeira, Brazil (Mann coll.), on Scarabæidæ.

Hypoaspis invertus sp. nov.

Yellowish brown. Body nearly one and a half times as long as broad, narrowed in front, dorsum without hairs, except on margin, four each side behind, and two each side in front of coxæ III. Legs moderately slender, but short, and with few hairs. Sternal plate with three bristles on each side, one behind at base of coxa III, and another at base of coxa IV. Peritreme long, rather remote from the coxæ. Ventri-anal plate large, inverted pyriform, much broader in front, concavely narrowed behind, about three bristles each side in front, and one each side of the anus. Length, .6 mm.

From Abuná, Rio Madeira, Brazil, on Scarabæidæ (Mann coll.).

Megisthamus armiger Berl. One from Itacoatiara, Amazon, on large Passalus (Mann).

Euzercon balzani Berl. Several from Manaos, from Itacoatiara, Amazon, on large *Passalus*, and Porto Velho, Rio Madeira, Brazil, on Scarabæidæ. (Mann and Baker.)

Celænopsis subincisa Berl. One from Abuná, Rio Madeira, Brazil, on Scarabæidæ (Mann and Baker).

Celænopsis brevis sp. nov.

Body as broad as long, almost pointed at each end, dorsum with a transverse furrow over coxæ II, no hairs, except four rather long ones near margin beginning at middle, and smaller ones around hind margin. Beak and palpi prominent, leg I very long and slender, longer than body, last joint a little longer than the preceding; other legs moderately stout, all shorter than body; all legs with fine hairs and a stouter one on patellæ of legs III and IV; sternal plate (of ♀) only between coxæ II, two bristles each side; the vulva large, much narrowed behind; anus small, fully its length before end of ventral plate; peritreme long, angulate near coxæ III. Length, .65 mm.

From Abuná, Rio Madeira, Brazil (Mann coll.), on Scarabæidæ.

Celænopsis nitida sp. nov.

Red brown. Body plainly a little longer than broad, almost truncate behind; dorsum smooth, but each side near tip is a large curved spine, and the posterior margin bears a series of moderately long hairs. Venter with very small hairs on sternum; vulva between coxæ II and III, not very large; a large long spine each side on the beak. Leg I very long and slender, with few fine hairs; others legs short and stout, not as long as the width of body, fourth pair of legs stoutest, all with few hairs; peritreme long, close to the outer margin of coxæ; palpi long, first joint with several very long hairs on inner side. Length, 1.7 mm.

From Abuná, Rio Madeira, Brazil (Mann and Baker).

Uropoda frontalis sp. nov.

Red brown. Body nearly one and a half times as long as broad, in front produced in a slight median process, with a little hair at each side; the oral plate shows a median and slight lateral projection in front. Above and below without distinct hairs; legs very short, with few fine hairs, except at tip; the male genital aperture is small, and situate between the hind coxæ, a little nearer to the posterior than the anterior end of the body. Length, .6 mm.

From Natal, Brazil, on *Diploderus* (Mann coll.).

Discopoma ? modesta Berl. One from Independencia, Brazil, on large Scarabæidæ, probably this species (Mann).

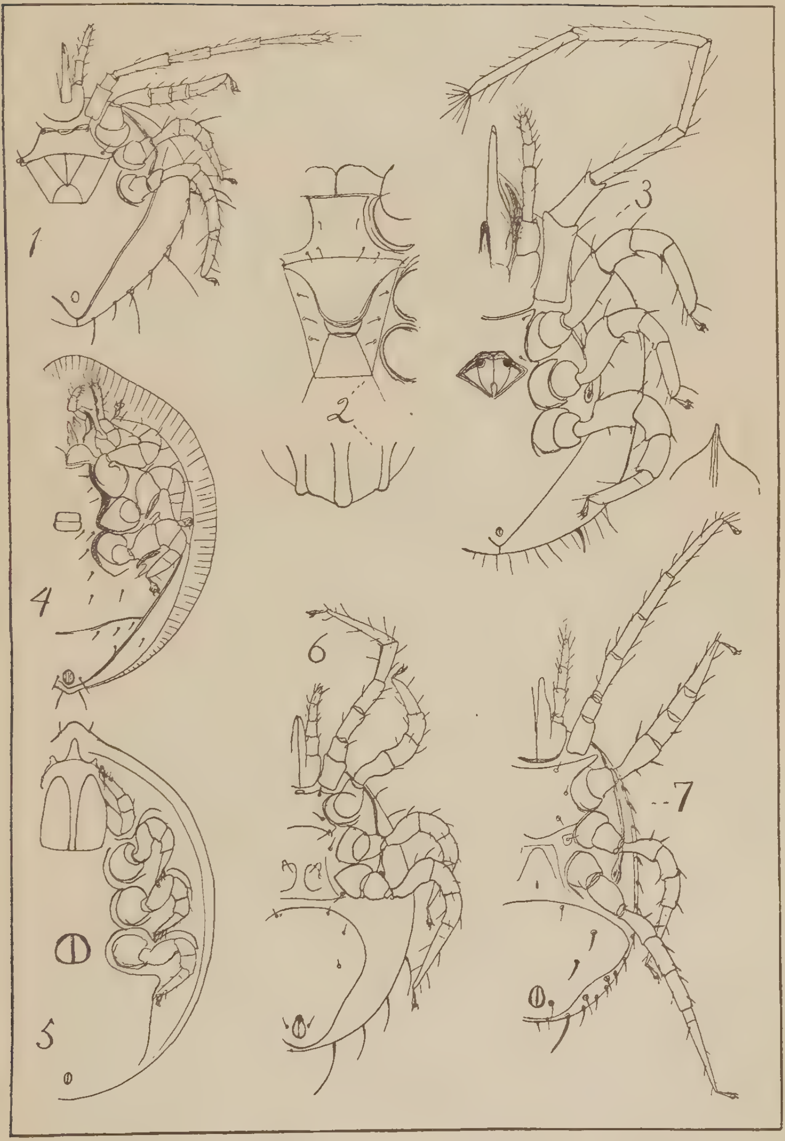
Trachyuropoda tricuspis sp. nov.

Body about once and a fourth longer than broad, broadest rather in front of the middle. Dorsum rough, behind near tip with three ridges which project slightly as three blunt cusps. All around the body is a thin membrane which is supported by many bristles, the outer third of each bristle is jointed and much finer than the basal part. The rostrum is bilobed at base, and with a curved spine each side, palpi short, with many hairs at tip. Legs short and stout, with few hairs, femora I and II with a plate-like process behind. Sternal shield with three hairs each side; male aperture twice as broad as long, situate between coxæ III; vulva large, sides straight, narrowed behind, in front with a U mark, and three hairs each side. Venter shows a few short hairs, and is crossed by a curved furrow beyond middle, anus has a hair each side. Length, .9 mm.

From Itacoatiara, Amazon, Brazil (Mann), on large *Passalus*.

EXPLANATION OF PLATE 8.

Fig. 1. *Celænopsis brevis.*
2. *Trachyuropoda tricuspis;* vulva, and tip of body from above.
3. *Celænopsis nitida.*
4. *Trachyuropoda tricuspis.*
5. *Uropoda frontalis.*
6. *Hypoaspis invertus.*
7. *Hypoaspis scutalis.*



Banks—Acarians from Brazil

MR. CRAWFORD'S RECENT WORK ON THE DELPHACINÆ[1]

By E. P. Van Duzee,
University of California, Berkeley, Cala.

Mr. Crawford has given us a considerable contribution to our knowledge of the Delphacinæ of America north of Mexico in which he has described one genus and twenty species as new to our fauna and in addition has given us a fair insight into the Delphacid fauna of Central and South•America. There is a carefully prepared key to the genera, in part founded on characters not before used for this purpose. Chief among these is the use of the post-tibial spur. The author has disregarded the pronotal carinæ in his classification of the genera, as a character difficult to appreciate, but uses those of the vertex and frons which are often still more obscure. In spite of all the objections that have been raised against the use of these pronotal carinæ in the classification of this group it still seems to me that they form a character of prime importance in discriminating the genera. There certainly are very few species in which their form cannot readily be made out, much more easily in fact than the form of the tibial spurs, and it seems hardly likely that they would ever separate otherwise closely related species. His discarding of this and other equally useful characters has led to his lumping several readily separable genera: three under *Dicranotropis* and six under *Megamelus*. These will be referred to later. A hasty glance over the paper shows that three genera and over forty described species were unknown to him in nature out of a total of fifteen genera and about one hundred species recorded from north of Mexico, a relatively large number which leads one to fear there may be some duplication among his twenty new species.

For one I cannot follow Kirkaldy, as Crawford has done, in giving the Delphacinæ family rank. It seems much better to continue the divisions of the old family Fulgoridæ as subfamilies, at least until some competent student has worked out the classification of the Homoptera in the same masterly way in which the later Dr. Reuter has the Heteroptera. I add the following notes:

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[1] A contribution toward a monograph of the Homopterous insects of the family Delphacidæ of North and South America. From Proc. U. S. Nat. Mus., Vol. 46, pp. 557-640, 1914.

Genus **Stobaera** Stal.

Crawford unites *concinna, minuta* and *affinis* with *tricarinata* but I am by no means convinced. While closely related I still believe them distinct as pointed out by me in my report on the Florida Hemiptera.

Genus **Cochise** Kirk.

In a letter from Mr. Muir he has suggested to me that *Cochise apacheanus* Kirk. is a synonym of *Bostæra nasuta* of Ball and I am inclined to think him right in this. Kirkaldy writes his descriptions in such a vague way it is impossible to form any mental picture of the object he is describing. For instance what does he mean when he says "lateral keels (of the pronotum) distant apically and basally, arising anteriorly at the inner margin of the eye, curving at an acute angle near the hind margin to meet the eye again"? If one tries to draw such a carina on a Delphacid pronotum he finds himself wandering aimlessly about, with two entirely different sets of carinæ as the final result. Probably the genus can only be located by a restudy of the type.

Genus **Achorotile** Dahlb.

It is likely that this genus does not occur in America. The specimens I formerly located as albosignata Dahlb., I now find to be the young of *Megamelus notatus* Germ. *Achorotile foveata* Spooner is a redescription of my *Stobæra 4-pustulata* from Florida.

Genus **Jassideus** Fieber.

In *Macrotomella* the lateral pronotal keels are distinct and run to the hind margin and the form of the head is entirely different. *Stiroma* I also believe to be sufficiently distinct. Both of these genera have the keels of the head continued over the apex while in *Jassideus* they are obsolete there, a character Crawford accepts in *Kormus*.

Genus **Phyllodinus** Van Duzee.

Mr. Crawford names Jamaica as the locality for my *nitens*. It was from Florida and was described in my paper of 1909, not 1907.

Genus **Liburniella** Crawford.

This is a good genus sufficiently distinct from *Liburnia* Stal. *L. ornata* Stal. is the only species known to me.

Genus **Stenocranus** Fieber.

S. saccharivorus Westw. is a light green insect, not "yellowish-orange" as described by Crawford. His specimens may have been in spirits. It was common about sugar cane in Jamaica and I took it at Tampa, Florida.

Stenocranus croceus Van Duzee. This species is here wrongly credited to Osborn and Ball, who merely listed the species but did not describe it. Their paper was published in 1897, not 1896. This is a true *Kelisia* as described by me, and has the front distinctly wider than in *Stenocranus* with the sides arcuated.

Stenocranus vittatus Stal is undoubtedly the same as my *lautus* and both are probably mere color varieties of *dorsalis* Fitch.

Genus **Dicranotropis** Fieber.

The genera *Peregrinus* and *Pissonotus* are entirely distinct from *Dicranotropis* and may at once be distinguished by the characters of the pronotal carinæ: In *Perigrinus* they run straight to the hind margin, while in *Pissonotus* they are more divergent and rarely attain the hind margin. In *Dicranotropis* these carinæ follow the contour of the eye. The general aspect of *Pissonotus* is very distinct, approaching only *Megamelus*. Mr. Crawford sinks my *basalis* as a synonym of *delicatus* but it is absolutely distinct. The Columbus, Texas, specimen which he examined was not typical of the species as I stated in my description. I do not think I labeled that specimen as a "type." If I did it was done inadvertently.

Genus **Megamelus** Crawford

This genus as outlined in the work before us contains at least six undoubtedly valid genera: *Megamelus*, *Kelisia* and *Prokelisia* with the lateral pronotal keels running straight to the hind margin, and *Euidella*, *Chloriona* and *Liburnia* in which they curve outward behind the eyes. In his key the author divides his unwieldy genus into these two sections and under each uses color characters first and ultimately structural features for locating the species. I have not tried to run down any of the species by his key but it would, I believe, have been just as simple and useful had it been divided into the six genera formerly recognized. The preparation of a key for the large genus *Liburnia* was no small task and if Mr. Crawford has done this successfully it is something for which we will all feel grateful.

I must call attention to a statement made by Kirkaldy some years ago and now repeated by Crawford: that Stal used *Embolophora monoceros* as the type of his new genus *Liburnia*. There is absolutely not one iota of foundation for this statement except the fact that Stal placed it as the first species of his new genus. As a matter of fact *monoceros* is the type of the entirely distinct genus, *Embolophora*, and can never be used as the type of *Liburnia* Stal. I have already shown (Bull. Buf. Soc. Nat Sci. X, p. 504, 1912) that *Liburnia* Stal was simply a new name for *Delphax* Auct. (not of Fabr.) of which *pellucida* Fabr. should be the type. *Delphax striata* Fabr. is the type of *Delphax* Latr. but Stal does not quote *Delphax* Latr. but *Delphax* Auct. and as *striata* seems to be an unrecognized species it is probably better to use *pellucida*, which is a well known form.

TWO NEW SPECIES OF PLATYPEZA FOUND AT STANFORD UNIVERSITY.

By Frankie Willard,
Stanford University.

While making a study of the insect larvæ living in mushrooms, I found an old cluster of *Agaricus californicus* which was infested with hundreds of small oblong larvæ that were feeding on the soft fleshy portions of the plant at the base of the gills. Many other specimens were taken during the months of April and May, the dark gills of the mushrooms showing that the material was rather old. When these were placed in jars containing damp soil the larvæ fed for several days in the mushrooms. Some then bored into the soil to pupate, others pupated on the surface under the fungus or in exposed places. The length of the larval period was not determined. Most of the insects remained in the pupal stage from seven to nine days, but some did not issue until the following

September, or about the time of the early rains. These larvæ, which proved to be the immature stages of an undescribed species of Platypezidæ, are cylindrical, soft, and cream colored. The body tapers anteriorly and the first segment is rounded. The surface of the body is rough, covered with many small spines. Each segment, except the first, second and last, is provided with two large, lateral, and two smaller, dorsal, segmented, spiniferous appendages. The second segment has only dorsal setæ; the last segment has two pairs of lateral setæ and one posterior pair. The anterior margins of the first, third and twelve segments are each provided with a pair of short tube-like processes. The ventral side of segments five to eleven have a pair of papilla near each lateral margin. The slit-like anal opening is on the ventral side of the twelfth segment.

The pupa is dark brown in color; oval, flat, hard and wrinkled. The appendages are the same as in the larva.

Some of the adult flies were sent to Professor J. M. Aldrich, who kindly examined them and said they belonged to an undescribed species. He sent several specimens of still another undescribed *Platypeza*, which he reared from the shelf-fungus, Polyporus, while at Stanford in 1906. The descriptions of the two species follow.

Platypeza agarici sp. nov.

Male: Velvety-black. Head black; antennæ black; face grayish in middle; cheeks black, with black hairs. Eyes contiguous, divided, upper half reddish-brown, with large ommatidia, lower half black, with small ommatidia. Thorax black with black hairs. Abdomen velvety black; last segment and a narrow margin on the incisures, grayish. Sides and back with black hair. Legs black; tarsus brown with fuscous pile; hind tarsal joints flattened; the third joint is the longest and broadest; halteres black. Wings hyaline; subcostal cell of a yellowish tinge; veins brown; anterior branch of 4th vein well arcuated; the posterior branch reaches to the border of the wing; 2nd posterior cell short; posterior cross vein removed from border of wing on 5th vein by twice its own length. An interesting variation occurs in the cross vein between the first and second basal cell. Always faint, it is entirely lacking in some specimens.

Female: Eyes separated and not divided. Abdomen velvety black. Length, $2\frac{1}{2}$–$3\frac{1}{2}$ mm.

Platypeza polypori sp. nov.

Male: Velvety black. Head black; face black, grayish toward ventral margin; cheeks black with black pile; antennæ black; eyes contiguous, divided; the upper half reddish with large ommatidia; the lower half dark brown with small ommatidia.

Thorax black with black hairs. Abdomen velvety black; last segment and incisures dark gray; sides and back covered with fine, soft, black hairs. Legs fuscous or blackish; hind tarsal joints flattened, the basal segment broadest, the third segment longest; halteres fuscous; knobs black. Wings hyaline, subcostal cell with a very faint yellowish tinge; veins brown; anterior branch of 4th vein rises at almost a right angle from the fourth vein; posterior branch does not reach the margin of the wing; second posterior cell very short. The distance from the posterior cross vein to the tip of the 5th vein is about one-third the length of the posterior cross vein.

Female: Eyes not contiguous or divided. Face grayish. The first, third, fourth, and fifth segments of abdomen grayish.

These studies were made in the Entomological Laboratories at Stanford University where the types of the new species are deposited.

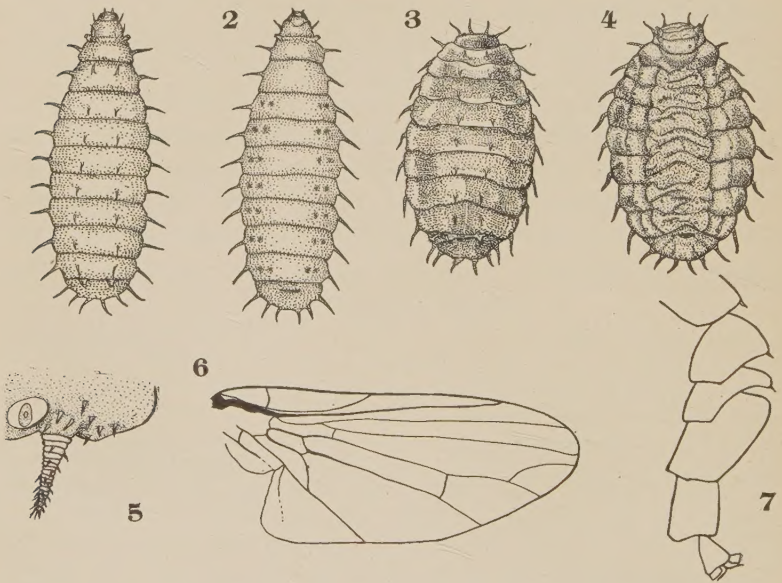

Fig. 1. *Platypeza agarici* sp. nov. 1, dorsal view of larva; 2, ventral view of larva; 3, dorsal view of pupa; 4, ventral view of pupa; 5, one of the spines of larva; 6, wing; 7, hind leg, showing flattened tarsus.

EXCHANGE COLUMN

Will name and return species in certain families of Coleoptera. Buprestidæ especially desired.—C. A. Frost, 26 Pond Street, South Framingham, Mass.

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Will exchange for Geometridæ from any section of North America, or identify material for privilege of retaining examples.—L. W. Swett, 501 Washington Street, Room 44, Boston, Mass.

Will exchange insects of various orders for Parasitic Hymenoptera from any part of the world.—C. T. Brues, Bussey Institution, Forest Hills, Mass.

Wanted. Ants from all parts of the world.—W. M. Wheeler, Bussey Institution, Forest Hills, Mass.

I pay cash or give American and exotic insects in exchange for fertile eggs of Catocala spp., *living* Catocala ♀ ♀ (captured specimens only), hibernating pupæ and larvæ of any other group of Lepidoptera.—William Reiff, 366 Arborway, Jamaica Plain, Boston, Mass.

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The undersigned will greatly appreciate receiving records of New Jersey species not listed in Smith's Insects of New Jersey.—Harry B. Weiss, 272 Hale St., New Brunswick, N. J.

Offered for cash, but exchange preferred. Fitch and early Illinois reports; Insect Life; Harris's Insect; many others.—J. E. Hallinen, Cooperton, Okla.

Histeridæ. North American Histeridæ identified or unidentified, desired in exchange for beetles of other families. F. G. Carnochan, Bussey Institution, Forest Hills, Massachusetts.

Hemiptera-Heteroptera. I desire specimens of this group from all regions, especially New England. I will give in exchange species of this and other orders (except Lepidoptera), and will identify New England material. Correspondence desired.—H. M. Parshley, Bussey Institution, Forest Hills, Mass.

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